

Group Work as a Strategy for Attribution Retraining in the Asian Educational Context of Singapore

Caroline Koh

Nanyang Technological University
Singapore

The aim of this study is to investigate the effectiveness of group work as a strategy for attribution retraining and improving students' motivational styles. Students were first categorised into one of three motivational styles: learned helplessness, self-worth motivation and mastery orientation. In the intervention procedure, selected students from each of these three categories were subjected to an intervention procedure requiring the students to work in groups, with the emphasis on personal effort as the major contributor to group success. Post-intervention assessment of motivation showed an improvement in the motivation of self-worth motivated students although there was generally a decrease in mastery orientation amongst students in both the control as well as the experimental groups.

Key words: motivational styles, attribution retraining, mastery orientation, self-worth motive, learned-helplessness, group work, cooperative learning

Introduction

In motivational psychology, attribution theory plays a significant role in the context of education, since students' causal inferences for academic achievement (or lack of it) are usually associated with their subsequent performance. Following Heider's pioneering work, researchers such as Kelly (1967), Jones (1972), deCharmes (1968), Weiner (1974) laid the framework for further investigations on the type of causal attributions made by individuals for their achievements or failures. Other researchers, who studied the effects of students' attributions on their future performance,

emphasized the importance of recognizing the role of students' motivational styles in determining their response to future tasks. Thus, students are more likely to show persistence in academic tasks when they ascribe the outcome of their performance to internal, unstable and controllable factors such as effort input. Unfortunately, research shows that a considerable number of students tend to attribute their experiences of failure to factors that are stable and uncontrollable. These 'maladaptive' students often show little inclination to persevere and expend effort in future tasks, perpetuating their poor academic performance.

Teachers and educational administrators thus face the challenge of helping students make desirable attributions that can promote motivation and academic success. To eliminate failure avoidance, Covington suggested that there should be in learning systems, a sufficiency of rewards in order to reduce not only the incidence of failure but its psychological implications. He has proposed (1984, p. 97) that this could be achieved in either one of three ways: *"through competition with absolute standards of excellence,*

Caroline Koh, Psychological Studies, National Institute of Education, Nanyang Technological University, Singapore.

Correspondence concerning this article should be addressed to Caroline Koh, Psychological Studies Academic Group, National Institute of Education, Nanyang Technological University, 1 Nanyang Walk, Singapore 637616. e-mail: caroline.koh@nie.edu.sg

through self-competition or by means of cooperative peer learning". What is required is not to make success come easy for more students but to teach students how to overcome failure by redefining the latter as a stepping-stone towards success and as a learning experience. In this respect, a likely setting to nurture this change of paradigm is Covington's suggestion of a cooperative learning environment as opposed to strictly competitive or individualistic goal settings. Johnson and Johnson (1989, p. 2) defined cooperation as "working together to accomplish shared goals", and further as "the use of small groups so that individuals work together to maximize their own and each other's productivity and achievement". Cooperative strategies are likely to be effective in attribution retraining procedures since the basic elements of cooperation provide the means to counteract the negative effects of maladaptive motivation.

This study investigates the use of a cooperative learning strategy as a procedure for attribution retraining, whereby it is expected that the benefits of working in groups will reinforce effort attributions and lead to higher levels of motivation amongst students.

Defining Motivational Styles

In attribution theory, a student's motivational style is defined as his/her behaviour and response to a perceived threat of failure on a task (Galloway, Leo, Rogers, & Armstrong, 1996; Koh & Galloway, 2006). Of notable significance in this area, is the extensive research carried out by Dweck (1975) and co-workers (Diener & Dweck, 1978; Dweck & Leggett, 1988) on the distinction between the desirable motivational style, termed mastery orientation, and that referred to as maladaptive, whereby students show characteristics of learned helplessness. Unlike mastery oriented individuals, who respond to failure experiences by increasing their effort input in order to achieve success, learned helpless students are inclined to accept failure as a proof of their lack of ability and perceive effort as futile.

Dweck's findings were followed closely by the identification of a third motivational pattern, qualified as maladaptive, and termed the self-worth motive. Authors such as Weiner and Kukla (1970), and Covington (1984) played key roles in defining the motive of self-worth and in

characterising its features. Self-worth motivated students tend to employ strategies to provide acceptable explanations for failure in order to protect their self-esteem and reputation. In addition, they would avoid situations that would put them at risk of 'losing face', or that would compromise their status vis-à-vis their peers. Thompson (1993, 1994) and Covington (2000) referred to the grouping of these ego-defensive mechanisms into three categories which involve the self-worth protective strategy of withholding effort, the self-handicapping strategy of impairing one's ability and the strategy of defensive pessimism, whereby task value or expectations of success are unrealistically downplayed.

Covington inferred that when self-worth motivated students encountered failure in spite of effort input, they experienced intense shame since this revealed their lack of ability. However, it is not clear whether this conclusion could apply to students in an Asian context, where effort is prized as a cultural value. There is evidence from Volet's (1999) study on the performance of South East Asian students, that the situation might indeed be different. Furthermore, contrary to early reports (Dweck, 1975; Craske, 1988) which were unable to establish any conclusive link between gender and motivational styles, recent studies (Koh & Galloway, 2006) showed a higher proportion of maladaptive males as compared to females. These findings thus serve to highlight the role of context and culture in influencing motivational patterns amongst individuals.

Attribution Retraining

Following the identification of the different motivational patterns, researchers have focused their efforts on finding strategies to enable students with maladaptive motivational styles to attain the desirable status of mastery orientation. This objective forms the basis of 'attribution therapy' (Valins & Nisbett, 1971) and 'attribution retraining' (Dweck, 1975). The main strategy used by authors such as Dweck (1975) and Craske (1988), was to teach their test subjects to attribute failure experiences to lack of effort instead of lack of ability.

Although this method has had positive results with learned-helpless individuals, there is scarce evidence for the successful practice of attribution retraining programmes in terms of the self-worth motive. Various authors have,

however, suggested ways to alleviate the negative attributes of the motive of self-worth. Covington (1984) had argued that the perception of effort input as the prerequisite for improvement in performance is to a large extent, a teacher's perception which might be in conflict with the values of older students, who believe that ability, rather than effort is required for success. Thus, older students are said to view high levels of effort as a 'double-edged' sword (Covington & Omelich, 1979). On one hand, there is the threat of failure despite high levels of effort, which would only serve to confirm low ability, but on the other hand, lack of effort would also imply disapproval and punishment from teachers. Since older students equate ability with success, perceived threat of failure would lead to a tendency on their part, to avoid rather than to face a particular task. This perception of the link between ability and success has to a large extent been inculcated through the years of learning in a competitive environment, where rewards are scarce.

As mentioned earlier, Covington (1984) suggested the provision, in learning systems, of a sufficiency of rewards and the need for success to be redefined in terms of 'exceeding one's own goals or standards rather than surpassing the accomplishment of others' (p. 98).

Although Covington's suggestions would undoubtedly convey greater success assurance to students who fear failure, there are potential problems associated with the above-mentioned approach. If students are allowed to set their own goals, there is the risk that they may choose tasks that are below their ability level in order to ensure success (Atkinson & Raynor, 1977) and hence reinforce rather than combat failure avoidance strategies.

Even if students were to compete with absolute standards set by teachers or by themselves, there might be a tendency to set low achievement levels that ensure success but are poor indicators of ability, and do not challenge the students to reach greater heights in learning. By establishing plentiful rewards, teachers would be creating an over-protective environment where students have the illusion that success will always come easily. The major concern is whether they will be able to cope in the competitive environment of the real world outside school.

If the lowering of achievement standards is not a desirable option, the way forward is to teach students to overcome the negative psychological effects of failure and to view the latter as a learning experience. In this respect, a

plausible solution lies in Covington's suggestion of a cooperative learning environment, as opposed to strictly competitive or individualistic goal settings.

In this study, a cooperative learning approach was thus adopted for attribution retraining, whereby the emphasis was on personal effort (rather than ability) as the major contributor to group success. The emphasis on effort as being a key factor in success would help the learned helpless. In addition, the students would be taught that failure was not necessarily a threat to their self-worth, especially if it followed a difficult task. Thus, one of the main objectives of the procedure was to ensure that, in addition to the benefit gained from peer support on cooperative learning, individual as well as group effort was acknowledged by teachers and more importantly by peers, even when it was not immediately followed by success.

The Role of Cooperative Learning and Group Work

The Johnsons (1989, p. 2) emphasized the beneficial effects of cooperation in a wide range of situations, notably in providing opportunities for individual members of a group to be rewarded for their accomplishments or consoled in their failures by their peers. Cooperative learning strategies might be the key to providing a remedy for the motive of self-worth since cooperation has a positive effect on the very areas that are problematic for the self-worth persona. Researchers on cooperative learning have developed instructional programmes based on the objective of enabling students to use cooperative learning strategies to achieve academic goals. A set of such instructional techniques, known collectively as Student Team Learning, has been devised by Slavin (1986, 1990). One of these techniques, the Student Teams Achievement Divisions (STAD) has been extensively researched and proves to be particularly useful on account of its adaptability, being applicable to a wide range of academic subjects. STAD has also proven to be highly effective in improving achievement amongst students of different abilities (Slavin & Karweit, 1984) and in different subjects such as social studies (Allen and VanSickle, 1984), language (Slavin & Oickle, 1981), science (Okebukola, 1985) and industrial arts (Perrault, 1982).

As the STAD is mainly targeted at evaluating and

recognising group achievement and improvement, Mac Iver (1993) modified the STAD technique to assess and recognise individual performance and improvement. Thus, in Mac Iver's 'Incentives for Improvement Programme', students who showed improvement in their performance over time were given rewards in recognition for their effort. Mac Iver found that students who went through the programme showed substantial improvement in their final grades. He ascribed the effectiveness of the programme to two main factors:

(1) that students were set goals that were specific and achievable;

(2) that teachers were in a better position to recognise any improvements, no matter how small, made by the low-performing students and hence to reward them accordingly.

Although there has been much research on the application of Attribution Theory in education in the Western context, this field has yet to be explored thoroughly in Asian educational systems, despite the many reports of high levels of academic performance in the latter. Little is known about the effectiveness of attribution retraining in Asian educational contexts. In an attempt to bridge this gap, the current study focused on the following questions:

- What is the distribution of the different motivational styles within a sample of students in Singapore?
- How effective are group work and co-operative learning strategies, such as the STAD, in attribution retraining?
- What are students' views on group work as a strategy for facilitating task performance and improving motivation?

We hypothesized that the distribution of motivational styles amongst students in an Asian educational context would show significant differences from those obtained by researchers in a Western milieu, by virtue of the disparity in the cultural and social forces operating in those systems. We postulated that strategies such as group work and the STAD would encourage mastery-orientation amongst maladaptive students, since the intervention processes were designed to provide learning situations in which students were given the opportunity to cooperate with peers in tasks that involved an element of risk-taking. The objective of engaging students in group work was to remove the fear of failure and provide a less threatening working environment. When the outcome of risk-taking results in success and an increase in self-esteem,

the self-worth students will become less risk averse and attain mastery orientation. Since that same procedure requires the input of effort in carrying out the task assigned, the learned-helpless students will be encouraged to recognise the value of effort and to change their attribution of failure to one of a lack of effort rather than a lack of ability. Finally, we surmised that an improvement in motivation would translate into enhanced academic performance.

Method

This study involved three stages. First, it was necessary to identify the motivational styles (mastery orientation, self-worth motive or learned-helplessness) of the students involved. This was carried out using an adaptation of the procedure devised by Craske (1988) in which the performance of the students in a series of four subject matter tests was used to identify their motivational styles. Secondly, once the students' motivational styles were known, it was then possible to conduct the intervention procedure, attribution retraining, and to assess its effect on students identified as maladaptive (self-worth motivated and learned-helpless). For the intervention, the students were sorted out into an experimental and a control group to allow subsequent comparisons between the two, in terms of any changes in performance and motivational styles. In the third part of the study, a mixed models approach was used to appraise the effectiveness of the attribution retraining procedure. First, the motivational styles of the students were re-assessed using Craske's procedure and a new set of tests. This was followed by a qualitative inquiry, using a paper and pencil survey and focus group interviews, to further explore the perceptions of a smaller sample of students.

Sample

The current study dealt with a starting sample of 107 students, aged between seventeen and eighteen, from a sixth form Junior College in Singapore. Students gain entry into Junior Colleges based on their performance in the University of Cambridge General Certificate of Education (GCE) examination at Ordinary level ('O' level). At the end of the two-year program in the Junior Colleges, students then sit for their GCE Advanced level ('A' level) examinations. The

students chosen for this study had 'O' level aggregate scores ranging from 7 to 16 for English language and their five best subjects, and thus represented a range of academic abilities within the school. The computation of a student's 'O' level aggregate is based on his/her performance in each subject, whereby the highest grade is awarded a score of 1 and the lowest a score of 9. Hence, the lower a student's aggregate score, the better is his/her performance.

Selection of Students for Attribution Retraining

In this study, the motivational patterns of the 107 students were first assessed using one of the few measures of behaviour outcomes, a method developed by Craske (1988) and subsequently adapted by other researchers (Galloway, Leo, Rogers, & Armstrong, 1996; Koh & Galloway, 2006). This procedure had been used in subjects such as Mathematics, English and Biological Science. It was chosen for the current study, on the basis of its ecological validity and the fact that it allowed the distinction between mastery orientation and the two maladaptive styles of learned helplessness and the self worth motive. In this procedure, the students sat for a series of four topical tests (Tests A, B, C and D), whereby they were assessed on their knowledge and understanding of curriculum content in the subject of biological science. While the aim was to have Tests A, C and D of comparable difficulty, Test B was designed to provide a more challenging experience and was thus harder than the three other tests. Thus, following a likely low achievement in Test B, poorer performance in Test C than in Test A predicted a maladaptive response, while students who did equally well if not better in Test C were deemed mastery oriented. To provide a 'mitigating circumstance' or excuse for failure, the students in the Experimental group were warned, prior to Test D, that the latter would be of greater difficulty than the previous test. Worse results in Test D than in Test A predicted learned helplessness since deteriorating grades and a lack of improvement indicate a tendency to give up and belief in lack of ability. Self-worth motivation was ascribed to those who showed improvement or did equally well in Test D as compared to Test A, since an excuse for failure would have lessened any perceived threat to one's self-worth. To overcome any discrepancy in the equivalence of Tests A, C and D, the tests were standardized by converting the students' scores into z-scores. Further

details on the procedures for identifying motivational styles are available elsewhere (Koh & Galloway, 2006).

Of the 107 students tested for their motivational styles, a total of 75 participated fully in the intervention. The rest of the students were not included in the second part of the study on account of a number of constraints, such as involvement in other curricular programs or their inability to be present for the complete test series due to other commitments. Those involved in the intervention procedure were sorted out into two groups, with 38 of the students (24 mastery oriented, 6 self-worth motivated and 8 learned helpless) in the Experimental group and 37 of them (24 mastery oriented, 6 self-worth motivated and 7 learned-helpless) in the Control group. Equivalence of the two groups was achieved by matching the students in each group in terms of their academic performance and motivational styles.

Attribution Retraining Procedure

Whereas students in the Experimental group underwent attribution retraining, those in the Control group were taught separately, using traditional instructional and assessment methods. The attribution retraining procedure was adapted from Slavin's STAD and Mac Iver's Incentives for Improvement Programme, and was used for all the students in the Experimental group. The latter were sorted out into five-membered teams of mixed ability and motivational patterns. Each team included at least two mastery oriented members, one self-worth motivated and one learned helpless member. Prior to the intervention, the teacher informed the team members of the Experimental group that they were to form study groups to enable them to assist and encourage one another in their work. The study groups were given the opportunity to work together during tutorial periods. In the first part of the tutorial, the members of each team were required to hold discussions and help one another in solving a set of problems and/or questions based on the materials that they had been taught during the week's lectures.

Answers to the questions were given to the groups during the second part of the lesson and the group members were then required to assist one another in checking and interpreting the given answers and clarifying any doubts regarding them. The students were also told that the extent to which they helped one another would determine their performance in a series of tests that were to be conducted on

Table 1
Allocation of Improvement Points

Test Score	Improvement Points
Higher than base score by more than 10 marks	3
Equal to or higher than base score by up to 10 marks	2
Lower than base score by not more than 5 marks	1
Lower than base score by more than 5 marks	0

a fortnightly basis. These tests were also used to assess the effectiveness of the retraining procedures in changing students' academic performance and failure attributions, following Craske's (1988) post-training procedure, in which the tests were administered to the students in both the Experimental group and the Control group. The outcome of the students' performance in those tests was then used to assess whether there were any changes in the distribution of motivational styles as compared to that obtained in the pre-intervention analysis. The test series was also used as a means of recognizing team and individual performance improvement. Thus, at the beginning of the test round, each team member was assigned a base score equivalent to his/her score for the first test in the series. Following this, the scores obtained in a particular test would serve as the base scores for the next test. The students were then instructed to try to do better than their base scores in the coming tests and were informed that improvement points would be awarded on the basis of the scheme outlined in Table 1.

The role of the teacher in this programme was to keep records of students' test scores, individual and group improvement scores as well as base scores at the end of each round of tests. Once a test round had been completed, the teacher was to inform students of their individual and group improvement scores, and to reward or advise them accordingly.

At the end of the test series, recognition was given to firstly, the team and secondly, the class that obtained the highest average improvement points. The choice of average team and class improvement points over individual, group or class average test scores as criteria for giving rewards, was to place the emphasis on effort input rather than the students' ability and normative success. This was done in order to enable an individual's effort, no matter how small, to be recognised by both teachers and peers.

The series of post training tests were administered to the members of the Control group but the latter were not informed of their improvements relative to their peers. Comparisons were then made between the pre-test and post-test distributions of motivational styles amongst the members of the Control group.

Post-intervention Survey and Interviews

A paper and pencil survey was conducted with 35 students from the Experimental group (23 mastery oriented, 5 self-worth motivated and 7 learned helpless), shortly after the intervention procedures were completed. The objective was to allow triangulation of the findings resulting from the pre- and post-attribution retraining procedures, and to assess the extent to which the students perceived the intervention procedures as helpful in improving their learning and in removing the disruptive effects of failure. The survey questionnaire consisted of a number of free-response questions to which the students were required to pen their answers.

At the end of the intervention period, students from the Experimental group were selected for interviews to further assess the extent to which they were receptive to the programme. Group interviews, rather than individual interviews, were conducted so that the students would not feel intimidated, and to provide a more informal and relaxed setting. Each of groups interviewed consisted of about 4 to 5 students, of whom at least one was self-worth motivated and one learned-helpless. In addition to motivational style, the selection of students for the interviews was based on the students' willingness to take part. The students' responses were audio-recorded and transcribed. An open coding system (Glaser & Strauss, 1967) was used for the analyses of both the survey and interview questions. The students'

responses were sorted out into the relevant categories emerging from the codings. These are discussed below and where appropriate, excerpts from students' responses are included to illustrate pertinent issues.

Results

Distribution of Motivational Styles

The findings of the pre-intervention identification of motivational styles showed that 59% of the students chosen for the study were mastery oriented, 18% were self-worth motivated and 23% were learned helpless. It appears that the distribution of motivational patterns amongst the Singaporean teenagers involved in this study did not differ considerably from that obtained in Craske's study undertaken in Australia (1988), whereby 58% of the pupils were mastery oriented, 16% were motivated by self-worth and 26% were learned helpless.

In the post-intervention identification of motivational

styles, the overall distribution in the two groups (Control and Experimental) is shown in Table 2 and the changes in motivational styles of individuals are summarised in Table 3.

There was an unexpected decrease in the percentage of students showing mastery orientation in both groups, with a higher decrease (18%) for the Experimental group than the Control group (6%). However, when investigating the extent to which individuals changed their motivational styles after the intervention procedure, it was found that the attribution retraining procedure was effective in helping the self-worth motivated students to improve their performance and their ability to handle failure. Five out of six (83%) self-worth motivated students in the Experimental group showed characteristics of mastery orientation after the intervention programme, as compared to the situation in the Control group where only a smaller number (67%) attained mastery orientation.

However, the results showed that the retraining procedure did not benefit students originally identified as mastery oriented or learned helpless. Only 11 out of 24 (46%) of the original mastery oriented students retained their

Table 2
Overall Distribution of Motivational Styles

Group	Intervention*	Mastery oriented	Maladaptive	
			Self-worth motivated	Learned helpless
Control	Pre-intervention	24 (65%)	6 (16%)	7 (19%)
	Post -intervention	22 (59%)	15 (41%)	
Method 2	Pre-intervention	24 (63%)	6 (16%)	8 (21%)
	Post -intervention	17 (45%)	21 (55%)	

Table 3
Changes in Motivational Styles

Group	Intervention	Mastery Oriented		Self-Worth motivated		Learned Helpless	
Control	Pre-training	24		6		7	
Experimental		24		6		8	
		Mastery oriented	Mal-adaptive	Mastery Oriented	Mal-adaptive	Mastery oriented	Mal-adaptive
Control	Post-training	14 (58%)*	10 (42%)	4 (67%)	2 (33%)	4 (57%)	3 (43%)
Experimental		11 (46%)	13 (54%)	5 (83%)	1 (17%)	1 (12.5%)	7 (87.5%)

Note. *Percentages of original (pre-intervention) motivational style

original motivational style, with the rest of the students showing attributes of maladaptive behaviour in the post-intervention tests. For the learned helpless students in the Experimental group, only one out of eight (12.5%) acquired characteristics of mastery orientation, while the rest remained maladaptive. In comparison, the Control group had 58% of its mastery oriented members remaining as such and 3 out of 7 (43%) of its learned helpless students showing attributes of mastery orientation.

To assess the statistical significance of the differences between the Control group and the Experimental group, the Chi-Square test for independence was carried out with the post-intervention distribution of motivational styles for both groups. The results, listed in Table 4 below, reveal that the differences in motivational change between the Control and Experimental groups were only statistically significant ($p < 0.05$) for the group originally identified as Learned helpless in the pre-intervention phase.

Table 4

Chi-Square test results and significance of differences between Control and Experimental groups

Motivational style	χ^2	p - value	Df
Mastery oriented	1.500*	0.2207	1
Self-worth	1.188*	0.2758	1
Learned helpless	7.146*	0.0075	1
Overall	8.753	0.1193	5

Note. * Yates correction applied

Responses to Survey Questions

The objectives of Questions 1 to 4 were to assess the effectiveness of group work as perceived by the students in the Experimental group. For Q2 to Q4, the responses of the students who retained or achieved mastery orientation were considered separately from those of the students who retained or declined into a maladaptive motivational pattern.

Q1 Did working in a group help your learning?

Affirmative answers were given by most (4 out of 5) of the self-worth motivated students, 14 out of 23 mastery oriented and 4 out of 7 learned helpless students, hence an overall majority of 63% of the students involved.

Q2 In what ways did group work help?

For the mastery oriented students who retained their initial motivational style, most (8 out of 11) replied that working in a group helped them and gave reasons that could be grouped into three categories: interest (e.g., finding it “more interactive” and “less dull”), peer interaction (e.g., they had the opportunity to “learn from others”) and competence (e.g., to learn “more ideas” and “other viewpoints”). In contrast, for students originally identified as mastery oriented but who showed maladaptive motivation after the intervention, only 6 out of 13 found that group work helped their learning and gave reasons which were similar to those given above. Of the self-worth motivated students, 4 out of 5 found that group work was helpful in their learning, citing reasons related to peer interaction (e.g., peer pressure from their group members prompted them to work harder) and improved competence (e.g., sharing of answers, making it easier for them to understand their work). The learned helpless students were rather divided in their answers, with 4 out of 7 finding group work helpful in their learning. These students perceived group work as providing the opportunity for enhanced competence (e.g., for ‘those who know to explain to others’ and for those who don’t know to “understand better”), coupled with peer interaction (e.g., the chance to “learn from other people’s mistakes”).

Q3 In what ways did group work not help?

In spite of the positive feedback from students, there were also many issues raised as to why group work might not be so helpful. Three categories were identified from the students’ discourse: task engagement, members’ competence and peer interaction. The students cited that their group members tended to go off-task (e.g., to “diverge and chit-chat”) or to engage in social loafing (e.g., “sit and do nothing” or “allow others to do”). Furthermore, the lack of competency and preparedness of some of the members hampered discussion (e.g., they “don’t know where to lead the discussion”, “were blank in their minds” and “unprepared”, the “better students tend to provide all the answers”). One of the mastery oriented students did not find group work helpful and commented that there was “no need to do work”. The implication here is that for some students, co-operative learning may be perceived as a golden opportunity for minimum effort and maximum reward! Yet others challenged the need for group discussion since they ‘already know the answer’ or they thought that the subject

was one ‘in which you need to understand and consolidate it yourself’. In terms of group dynamics, some of the students admitted to experiencing difficulty with open discussions, especially in a group in which members “don’t get along” or “are not in a mood to work”. Some of the least confident students shared the view that they had difficulties voicing their opinions or that group members did not pay attention to what was being discussed, and typically, in terms of self-worth motivation, the loss of confidence in the midst of people who know the answers and are therefore perceived as cleverer.

Q4 Did it make you more confident in the subject?

Of the original 24 mastery oriented students, 13 (54%) found that working in groups did *not* improve their confidence in the subject. Despite the fact that most of the self-worth motivated students did become mastery oriented at the end of the intervention, their general opinion was that group work did not contribute much to boosting their confidence. Similarly, a larger proportion (4 out of 7) of the LH felt that working in groups did not promote their confidence in the subject, and there was even mention of the process being demoralising.

The aim of questions 5 and 6 was to assess students’ views on aspects of group dynamics that might contribute to the effectiveness of cooperative learning.

Q5: Did you feel comfortable sharing views or ideas with members of your group?

The majority of students in all three categories of motivational styles replied that they felt comfortable in their groups. What is noteworthy is that the largest number of those answering positively comes from the mastery oriented with a high of 20 out of 23, followed by the self-worth motivated (4 out of 5) and the learned helpless (5 out of 7).

Q6: Is it more helpful to work with a group of friends of your own choice or with a group assigned by the teacher?

The students were decisive in their preference to work with a group of friends of their own choice, as reported by 18 out of 23 of the mastery oriented students, all 5 of the self-worth motivated and 5 out of 7 of the learned helpless students. Only a small number (2 out of 23) of the mastery oriented were in favour of teacher-assigned groups, while (3 out of 23) of the mastery oriented and 2 out of 7 of the learned helpless were indifferent to either of the options.

Q7 was a two-part question designed to assess the extent to which group work helped students develop a more

positive outlook towards difficult tasks, in view of removing the fear of the risk of failure associated with the latter. This is particularly relevant to maladaptive students, especially the self-worth motivated individuals who would tend to refrain from undertaking difficult tasks to which they ascribe low chances of success.

7(i) How did working in a group make you feel about difficult tasks or questions?

Analysis of the students’ reports showed two categories of responses: those in support of group work as an effective tool for overcoming task difficulty, and those who felt that group work contributed little or not at all, towards improving performance. There was no correlation between the students’ responses to this question and their motivational styles. Students who responded positively found that group work made the difficult task seem “more manageable” due to the combined effort and input of the group members. Many also stated that they felt more confident in tackling the question since “there are others who can help”. Others added that they felt less taxed, more relaxed and that they were “not alone in not understanding something”; and one student even wrote: “I feel better (in knowing) that though I don’t know the answer, it is not because I am dumb but the question is difficult”. However, there were some, albeit a minority, who did not find working in groups helpful when it came to dealing with more difficult tasks. They commented that “combined effort may not produce the (right) answer”; that the difficult task “could be solved with a group effort only if the rest of the members were serious and decided to cooperate” and furthermore that it was “hard for everyone to contribute” to the discussion. Some went as far as saying that they “felt useless” in the group and that there were occasions when there was “no unity or enthusiasm” within the group.

7(ii) Was it more difficult or easier to tackle them in a group than working alone?

28 out of 35 respondents found it easier to tackle difficult questions in a group, giving reasons such as more ideas being generated. The rest of the students were mostly in favour of working on their own, citing that there would be fewer tendencies to be distracted and to digress from the task.

Interview Results

Interview Question 1: When working on an assignment

or a problem, would you now prefer to work on your own or in a group?

The students interviewed were divided in their responses, with a marginally larger number indicating a preference for working individually rather than in a group. Those in support of group work were mostly weaker students who felt that group work provided them with the help they needed and the opportunity to learn from others when they experienced difficulty in an assignment. Other students were more cautious in their answers, adding that their choice depended on the level of difficulty of the task. When assigned a difficult task, they would rather work in groups but they preferred to work individually on easier tasks. However, the more able students were almost unanimous in stating their preference for individual work. They gave reasons such as the tendency of the group members to go off-task or to indulge in social loafing, relying on others to provide them with ready-made answers. There were students who felt that it was important to undertake at least some individual preparation, in order to have sufficient knowledge of the material, before fruitful discussion could be achieved at group level.

Interview Question 2: Did you feel more motivated towards learning as a result of working in groups?

The general consensus amongst the interviewees was that the effectiveness of group work in motivating them towards learning depended on the people within the group and whether the group members were sufficiently enthusiastic, pro-active and unified.

Half of those who answered the question replied that their motivation towards learning stemmed from extrinsic rewards such as the need to produce good results and/or intrinsic factors such as their innate interest in the subject, rather than their experience of group work. Nevertheless, the rest of the students generally found that working in groups increased their motivation as they felt compelled to prepare their work before the lesson to avoid the embarrassment of having their ignorance displayed during the discussion. Group work also allowed some of them to compare their performance with that of their peers, thus prompting them to work harder.

Discussion

In terms of the mastery oriented students, the post-

intervention results showed the highest overall drop (18%) in the number of mastery oriented students from 24 to 17. Of the 24 pre-intervention mastery-oriented students, only 11 (46%) retained their initial motivational style, the rest showing maladaptive attributes in the post-intervention assessment. The outcomes of the survey and interviews may provide an explanation for this observation. The interviews indicated that slightly more than half of the students preferred individual work over group work. In addition, the survey showed that about half of the mastery-oriented students who displayed post-intervention maladaptive motivation, did not find group work useful. They felt that their progress was hampered by other group members who were not co-operative, and as such, they found that they did not benefit from the group experience to any greater extent than if they were working on their own. This might have led to a decline in their motivation and performance achievement in the subject.

The learned-helpless students showed little improvement in their motivation, since 7 out of 8 of them remained with a maladaptive style. This is in spite of the fact that more than half of these students found group work helpful. The survey revealed that there was a tendency for the weaker students to take on a passive role in the group, doing little preparation prior to the group discussions and waiting for the more able students to provide the answers or solutions to the tasks. Hence, the learned helpless students might not have benefited fully from the group interactions as they might have been merely imbibing others' ideas without any true integration of learning taking place. More than half of these students also reported in the survey that working in groups did not increase their confidence in the subject. The learned-helpless students could have therefore felt even more helpless and intimidated in a group where the more knowledgeable and vocal students (usually mastery oriented) had the tendency to dominate the discussion, as observed by the teacher during lessons and commented upon during the post intervention interviews.

Although the intervention procedure was not beneficial to the mastery oriented and learned helpless students, there was an indication of its effectiveness for the self-worth motivated students. The post-intervention results indicated that 5 out of 6 of the original self-worth motivated students showed the characteristics of mastery orientation after the programme. The survey results indicated that most of the

self-worth motivated students found group work helpful and attributed this to peer influence and improved competence. It seems therefore, that working in a group, especially in the midst of friends, helped to alleviate the fear of failure in the self-worth motivated students. Furthermore, the survey revealed that the students felt more confident in attempting difficult tasks when working in groups. The realisation that they were “not alone in not understanding something” could have prompted the self-worth motivated students to be less risk-averse. In a situation where ego-protection is no longer imperative, the self-worth motivated students were then able to take a more pro-active role, hence the improvement in their motivation and performance.

In terms of the Control group, there was an overall drop in the percentage of students showing mastery orientation in the post-intervention assessment, as compared to the pre-intervention data. While the drop in mastery orientation amongst students in the Experimental group could be attributed to factors related to the intervention procedure, the decrease observed in the Control group was from 24 to 22 out of a total of 37 students. Although one cannot exclude random variation as one of the causes for the observed changes in numbers, other reasons can be advanced to explain this observation. Firstly, the Control group could have felt disadvantaged because their friends in the Experimental group were selected for the improvement programme. This could have led to a feeling of being left out or a loss of self-confidence on their part, resulting in a decline in motivation. The second possibility is that those were already performing well in the subject might have thought that it was not necessary for them to sustain or increase their effort input, and so their grades deteriorated in subsequent tests. However, it is interesting to note that while 10 out of 24 (42%) of those identified as mastery oriented in the pre-intervention procedures subsequently showed maladaptive motivation in the post-intervention assessment, 8 out of 13 (62%) of the students with pre-intervention maladaptive motivation moved to mastery orientation in the post-intervention assessment. This is in support of the second explanation for the results of the Control group rather than the first one, since the latter would have suggested that in addition to the decline in motivation amongst the mastery oriented students, the students with pre-intervention maladaptive motivation would have remained maladaptive. This is particularly pertinent to an Asian context such

Singapore, where Confucian values still prevail, and students have been nurtured to extol the virtues of effort and hard work as the keys to success. For the students who performed poorly, the urgency was thus to improve and to do so quickly, hence the change from maladaptive to mastery orientation in the post-intervention assessment. On the other hand, some of the pre-intervention mastery oriented students might have thought that since their results were satisfactory, they had already put in adequate effort and there was no need to work any harder.

While previous research on attribution retraining has focused on learned helpless students (Dweck, 1975) and has produced positive results with the learned helpless but not with self-worth motivated students (Craske, 1988), the current study showed that the use of group work was effective in improving the motivation of self-worth motivated students. However, although the motivational styles of over a hundred students were identified, a comparatively small number were found to be maladaptive in their motivation. Hence, the effects of attribution retraining could be observed for only a small sample of subjects. Further research should consider the use of larger student samples from a number of schools with diverse student profiles. In addition, the problems commonly associated with cooperative learning strategies, such as social loafing, lack of focus, disputes amongst members, might have had detrimental effects on the motivation of the mastery oriented and learned helpless students. This calls for further studies to identify the interplaying factors that adversely affect motivation in group work.

Conclusion

This study suggests that although students generally recognize the benefits of working in groups, the use of group work as a strategy to improve students' motivation yielded mixed results, with the self-worth motivated students having benefited most from the process. The results obtained from this study also suggest that motivational styles are far more dynamic and prone to change than expected, and an intervention to promote and sustain mastery orientation in all categories of students is yet to be found. Currently, there seems to be no single remedy that benefits both the self-worth motivated and the learned helpless, while sustaining

the motivation of the mastery oriented students. For educators and teachers, this stresses the importance of knowing the different motivational styles interplaying in the classroom, and the need for a customized treatment for each of the three categories. Early detection of maladaptive motivation enables classroom practitioners to adopt a differentiated approach to attribution retraining. While providing a sufficiently challenging learning environment to sustain the motivation of the mastery oriented students, teachers could help their maladaptive students by reinforcing effort attributions amongst the learned-helpless, and by encouraging peer support systems amongst the self-worth motivated systems. This study can thus be extended to include an investigation on the effectiveness of the above mentioned differentiated approach in helping students to overcome maladaptive motivation.

References

- Allen, W. H., & VanSickle, R. L. (1984). Learning teams and low achievers. *Social Education*, 48, 60-64.
- Atkinson, J. W., & Raynor, J. D. (1977). *Personality, motivation and achievement*. New York: Hemisphere.
- Covington, M. (1984). The motive for self-worth. In R. Ames & C. Ames (Eds.), *Research on Motivation in Education: Vol.1 Student Motivation*. New York: Academic Press.
- Covington, M. (2000). Goal theory, motivation and school achievement: An integrative review. *Annual Review of Psychology*, 51, 171 – 200.
- Covington, M., & Omelich, C. (1979). Effort: The double-edged sword in school achievement. *Journal of Educational Psychology*, 71, 169 –182.
- Craske, M. L. (1988). Learned helplessness, self-worth motivation and attribution retraining for primary school children. *British Journal of Educational Psychology*, 58, 152-164.
- deCharms, R. (1968). *Personal causation: the internal affective determinants of behaviour*. New York: Academic Press.
- Diener, C. I., & Dweck, C. S. (1980). An analysis of learned helplessness: II The processing of success. *Journal of Personality and Social Psychology*, 39, 940-952.
- Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology*, 31, 674-685.
- Dweck, C. S., & Leggett, E. L. (1988). A social cognitive approach to motivation and personality. *Psychological Review*, 95, 256-273.
- Galloway, D., Leo, E., Rogers, C., & Armstrong, D. (1996). Maladaptive motivational style: The role of domain specific task demand in English and mathematics. *British Journal of Educational Psychology*, 66, 197-207.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York: Aldine.
- Johnson, D. W., & Johnson, R. (1989). *Cooperation and competition: Theory and research*. Minnesota: Interaction Book Company.
- Jones, E. E., & Nisbett, R. E. (1972). The actor and the observer: Divergent perceptions of the causes of behaviour. In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valins & B. Weiner (Eds.). *Attribution: Perceiving the causes of behaviour*. Morristown, NJ: General Learning.
- Kelley, H. H. (1967). Attribution theory in social psychology. In D. Levine (Ed.), *Nebraska Symposium on Motivation*. Lincoln: University of Nebraska Press.
- Koh, C., & Galloway, D. (2006). Assessing motivational styles of students in the South-East Asian context of Singapore. *Asia Pacific Education Review*, 7(2), 184-194.
- Mac Iver, D. J. (1993). Effects of improvement-focused student recognition on young adolescents' performance and motivation in the classroom. *Advances in Motivation and Achievement*, 8, 191-216.
- Okebukola, P. A. (1985). The relative effectiveness of cooperative and competitive interaction techniques in strengthening students' performance in science classes. *Science Education*, 69, 501-509.
- Perrault, R. (1982). *An experimental comparison of cooperative learning to non-cooperative learning and their effects on cognitive achievement in junior high industrial arts laboratories*. Unpublished doctoral dissertation, University of Maryland.
- Slavin, R. E., & Oickle, E. (1981). Effects of cooperative learning teams on student achievement and race relations: Treatment by race interactions. *Sociology of*

- Education*, 54, 174-180.
- Slavin, R. E. (1986). *Using student team learning* (3rd ed.). Baltimore, MD: Center for Research on Elementary and Middle Schools, Johns Hopkins University.
- Slavin, R. E. (1990). *Cooperative learning: Theory, research, and practice*. Englewood Cliffs, N. J.: Prentice Hall.
- Slavin, R. E., & Karweit, N. L. (1984). Mastery learning and student teams: A factorial experiment in urban general mathematics classes. *American Educational Research Journal*, 21, 725-736.
- Thompson, T. (1993). Characteristics of self-worth protection in achievement behaviour. *British Journal of Educational Psychology*, 63, 469 – 488.
- Thompson, T. (1994). Self-worth protection: implications for the classroom. *Educational Review*, 46, 259 – 274.
- Volet, S. E. (1999). Motivation within and across cultural-educational contexts: a multi-dimensional perspective. In T. C. Urdan (Ed.), *Advances in Motivation and Achievement*, 11, 185-231.
- Weiner, B., & Kukla, A. (1970). An attributional analysis of achievement motivation. *Journal of Personality and Social Psychology*, 15, 1-20.
- Weiner, B. (1974). An attributional interpretation of expectancy-Value theory. In B. Weiner (Ed.), *Cognitive Views of Human Motivation*. New York: Academic Press.

Received September 14, 2007

Revision received February 16, 2008

Accepted March 26, 2008